

TO: Toll Bridge Program Oversight Committee (TBPOC)      DATE: October 11, 2007

FR: Andrew Fremier, Deputy Executive Director, BATA

RE: Agenda No. - 1

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Item- Re-decking of Existing Benicia-Martinez Bridge

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**Recommendation:**

Staff is recommending that the TBPOC approve an addendum to suspend the Existing Benicia-Martinez Bridge Modification Contract (04-0060A4) to evaluate the re-decking of the existing main span of the bridge.

**Cost Issues:**

Preliminary estimate for the additional cost of the re-decking is \$60 million. Currently, \$37 million in existing project and contract funds are available to fund the re-decking. Staff is still identifying funding options for the remaining cost of the work, including program and project contingencies and rehabilitation funds.

**Schedule Issues:**

The contract is currently scheduled for bid opening on October 31, 2007. Staff is requesting a temporary suspension of the contract bid process to assess the feasibility of the re-deck option. An estimated 9 to 12 months in additional construction time will also be necessary to construct the work.

**Discussion:**

- The existing main span bridge deck is now 45 years old. While the Department attempts a “maintain for life” strategy, general experience is that after 40 years most decks are in need of constant heavy maintenance and potentially significant rehabilitation and/or replacement. Actual recent experience on the Benicia-Martinez Bridge has been for small cracking to take 2 to 5 years to become significant, followed by punch-throughs appearing rapidly over days.
- While the as-planned deck rehabilitation work would repair the most damaged areas, future deck problems outside those areas would be expected to increase in number and frequency under future heavier loads and ongoing cyclical fatigue loadings. Even with the rehabilitation work, a new deck maybe needed in as early as 10 to 20 years.
- The re-decking project has been a potential project in the BATA/Caltrans Toll Bridge Rehabilitation Program. With approximately \$30 million in remaining New Benicia-Martinez Bridge Project Contingency, BATA requested that the District re-evaluate the Rehabilitation Program, including this project.
- On October 4, 2007, BATA and Department staff met in Martinez to discuss the condition of the existing deck of the Benicia-Martinez Bridge. Department representation included Brian Maroney, Mo Pazooki (Project Manager), Ken Brown (Office of Structures Investigations and Maintenance), and staff from Construction and Structures. The general technical consensus of

## *Memorandum*

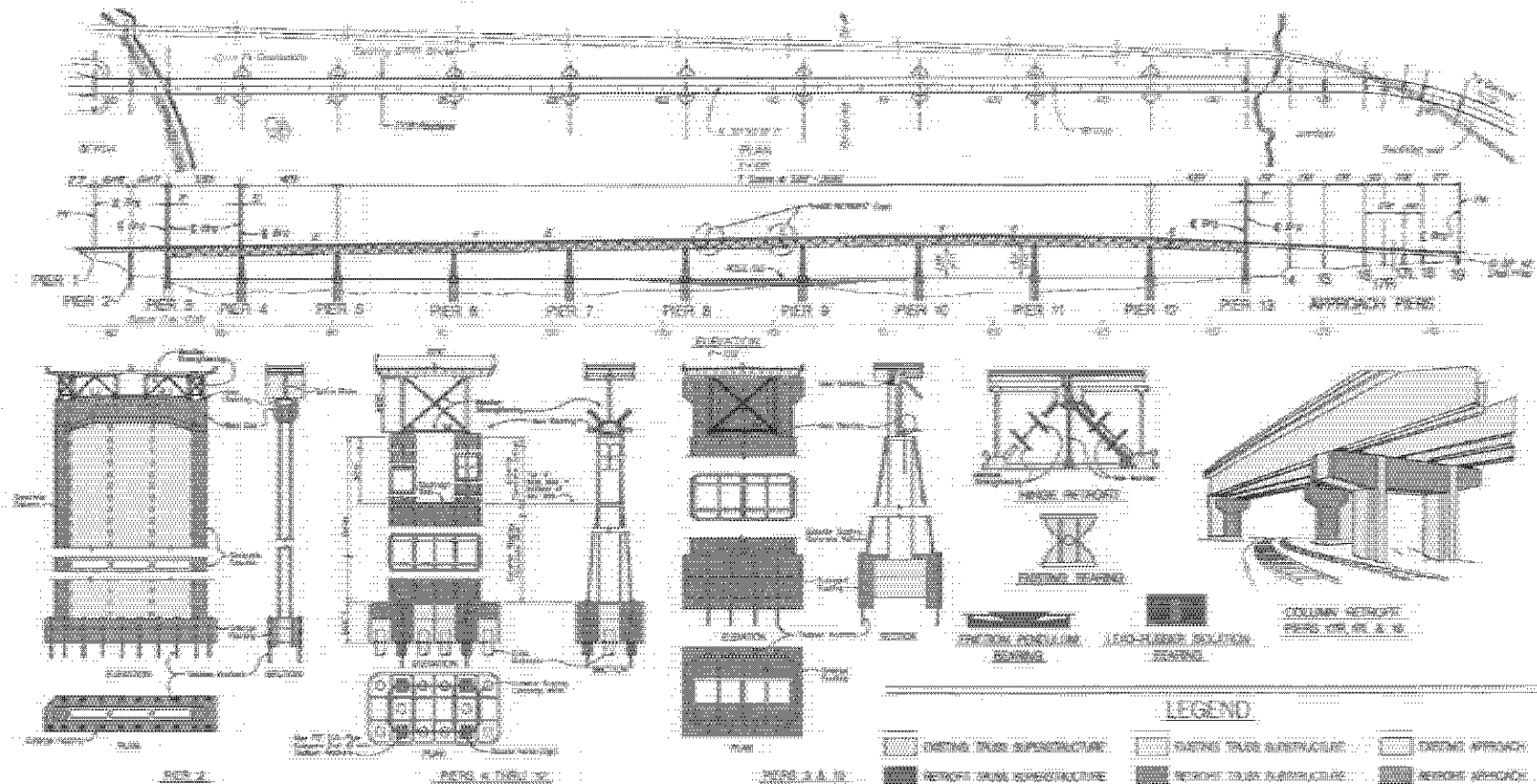
the group was that while the existing deck has some remaining life, re-decking the bridge should now be considered given the unique opportunity to re-deck the bridge while traffic is off the bridge, the benefits of a new deck, higher future costs and the future traffic impacts of re-decking later.

- Re-decking the bridge now would allow for construction without additional major impacts to the traveling public. Work could be done during the day while traffic is shifted around on the current closed sections of the bridge. Re-decking the bridge today would have a preliminary cost estimate between \$50 million and \$60 million and last at least 50 years or longer with later on-going maintenance and rehabilitation. Re-decking in the future is likely to be in the \$100 million to \$200 million range with significant traffic impacts and constructability issues.
- To expedite the re-deck design process, the technical team has proposed the following addendum:
  - A. Design the replacement deck based on the as-built deck, but with updates to current standards. Utilizing the as-built design would minimize design time, the need to seismically re-evaluate the “lifeline” bridge design, and risks by using a proven design that has lasted 45 years.
  - B. As an option, only replace the deck between widened deck areas, which are only 15 years old, in better general condition than the rest of the deck, would not be under constant vehicle loading in the future lane configuration, and avoids impacting utilities in the existing barriers.
  - C. As an option, limit the re-decking to an expanded strip of deck down the middle of the currently split approach structures. Generally, the approach decks are twice as thick as the main span deck and are in good condition. The original plan was to tie the structures together with a 4-foot wide reinforced concrete strip of deck. The proposed addendum would expand that strip to between 12 and 16-foot strip to take care of the areas most difficult to re-construct in the future. To re-deck in the future, the structures would have to be fully closed to traffic
- Department staff is currently presenting this proposal to Structures for review and concurrence. More in-depth design work is needed to validate the schedule and identify any problems with the proposal. BATA and Department staffs request at least a one-month postponement of the bid opening to evaluate the re-deck option.

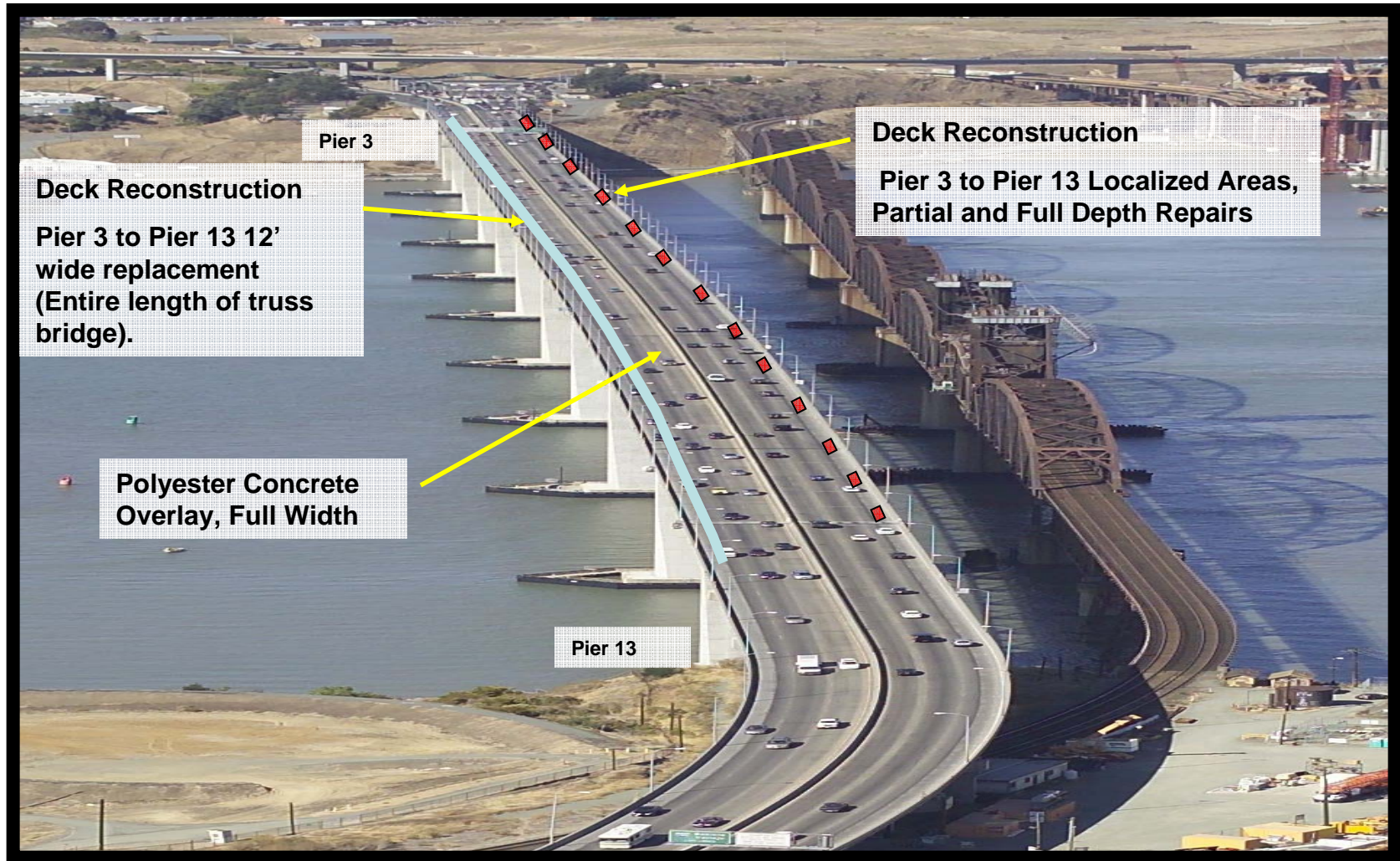
### **Requested TBPOC Actions:**

1. Authorize the Department to prepare an addendum to postpone the October 31<sup>st</sup> bid opening and a scheduled mandatory October 16<sup>th</sup> bidder outreach to allow BATA and the Department to continue to evaluate the re-deck option.
2. Direct BATA and the Department to provide full support to evaluating and designing the re-decking and identifying funding options for the remaining cost of work, including program and project contingencies and other rehabilitation funds.
3. Request a full briefing on the proposal at the TBPOC meeting October 30, 2007, at which time a decision can be made on whether to continue to pursue the re-decking option can be made.

# BENICIA - MARTINEZ BRIDGE RETROFIT

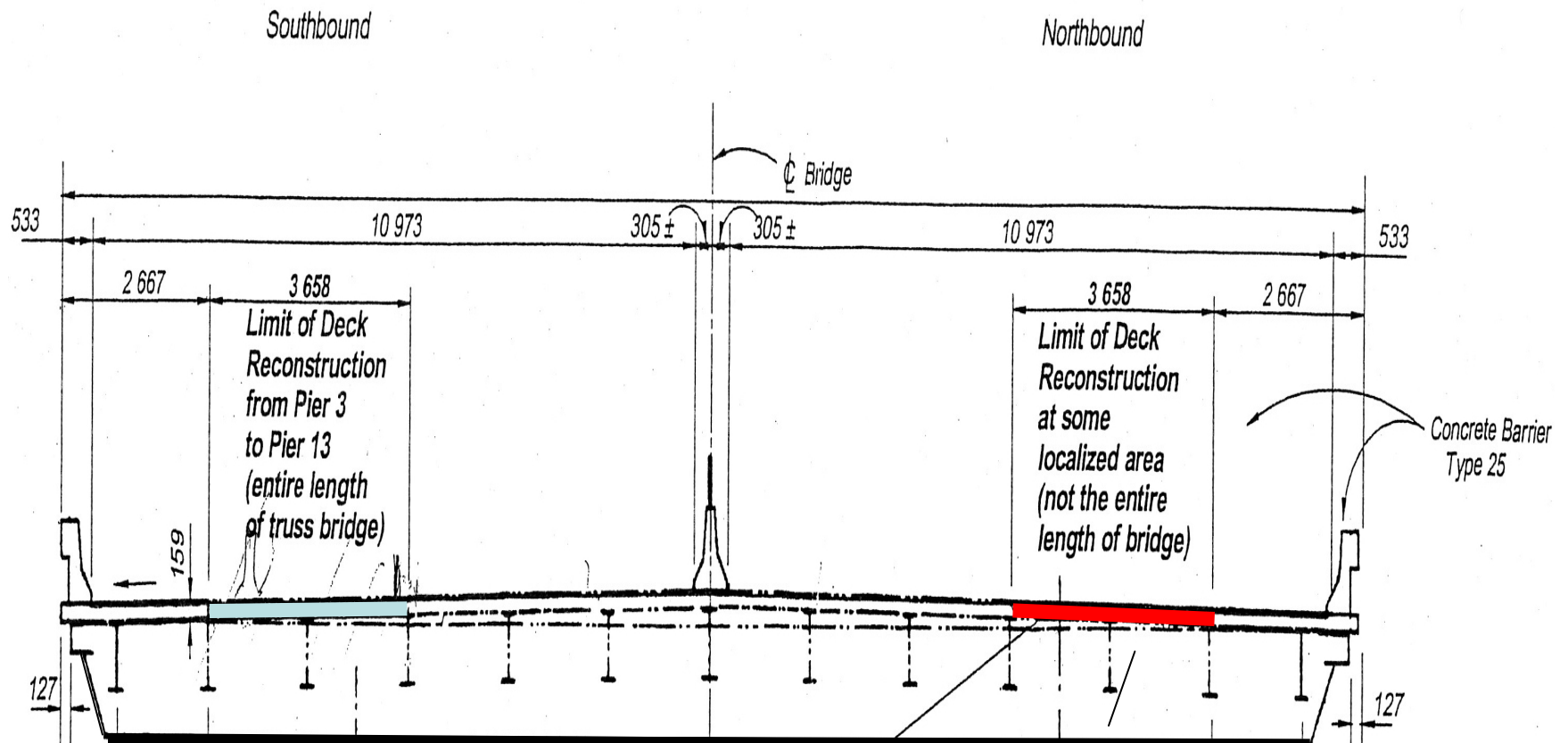


# Proposed Deck Rehabilitation





# Deck Reconstruction – Typical Section



# Deck Punch Through

First incident June 2000 requiring a 6 Ft x 6 Ft repair  
with subsequent repairs in January 2002 (3ft x 5 ft), and  
February 2006 (6ft x 10 ft)

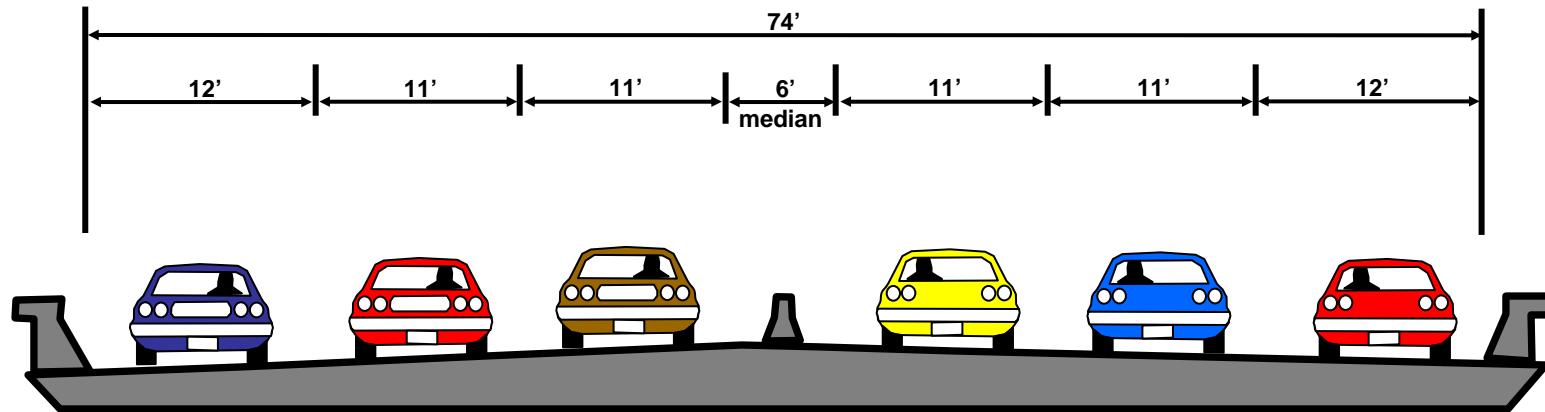


Span 8  
Panel Point 10, Stringers 11 -12



Soffit Cracks in Adjacent Bay  
Stringers 10 -11

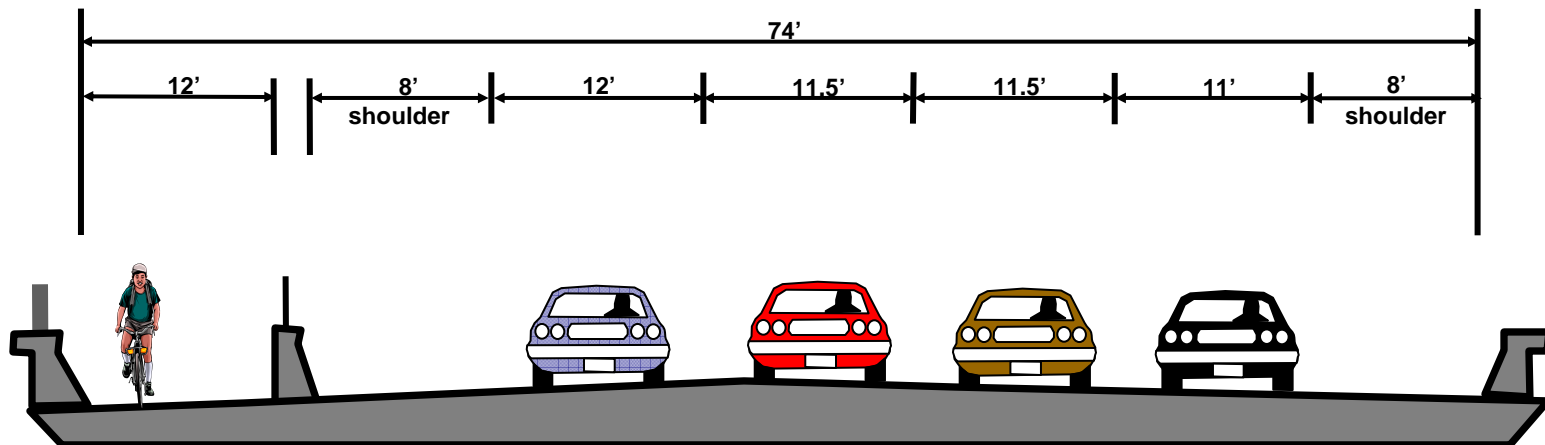
# Reconfigured Traffic Lanes With New Public Access



Southbound

Existing Bridge

Northbound



Reconfigured with New Bicycle & Pedestrian Path  
Southbound I-680